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Dairy Herd Improvement Letter

Vol. 54, No. 5

December 1978

NATIONAL COOPERATIVE
DAIRY HERD IMPROVEMENT
PROGRAM
A dairy recordkeeping plan
for every herd

- Lactation Averages for Calvings, 1976
- AI Sires by Predicted Difference Level
- Lactation Records Received, 1977, With Errors and Conflicts

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Dairy Herd Improvement Letter

STATE AND NATIONAL STANDARDIZED LACTATION AVERAGES BY BREED FOR COWS ON OFFICIAL TEST, CALVING IN 1976 1/

State and national standardized lactation averages by breed for cows on official test that calved in 1976 are presented in tables 1 and 2. Note that these averages are not the same as those used for calculating Predicted Difference.

Records Included in Averages

Only official records that passed the U.S. Department of Agriculture (USDA) editing (described in the December 1970 Dairy Herd Improvement Letter, ARS 44-222) were included in the averages.

Records Standardized to a 305-Day, Mature Equivalent (ME), 2X basis

Lactations for which cows were denied an opportunity to give milk for 305 days were projected to 305 days with factors that account for differences in lactation curves because of breed, age, and trait (milk or fat). The factors used by USDA were published in the August 1965 Dairy Herd Improvement Letter, ARS-44-164.

All lactations were standardized for age and month-of-calving by the factors published in "USDA-DHIA Factors for Standardizing 305-Day Lactation Records for Age and Month of Calving," ARS-NE-40, September 1974. The factors account for variation associated with age and month-of-calving within breed, season, region, and trait (milk or fat).

Lactations made by milking three or four times a day were then reduced to a two-times-a-day basis with factors published in the January-February 1972 Dairy Herd Improvement Letter, ARS 44-239.

Fat percentages were computed from the 305-day, ME, 2X milk and fat yields.

1/ Prepared by Gerald J. King, dairy husbandman, with technical assistance of James H. Grove, computer programer, and Evelyn F. Myers, statistical assistant, Animal Improvement Programs Laboratory, Beltsville Agricultural Research Center, Science and Education Administration, U.S. Department of Agriculture, Beltsville, Md. 20705.

TABLE 1.--STATE AND NATIONAL STANDARDIZED LACTATION AVERAGES FOR AYRSHIRE, GUERNSEY, AND HOLSTEIN COWS ON OFFICIAL TEST, CALVING IN 1976

	AYRSHIRE				GUERNSEY				HOLSTEIN			
STATE	RECORDS	MILK	FAT	FAT	RECORDS	MILK	FAT	FAT	RECORDS	MILK	FAT	FAT
	NO.	LB	PCT	LB	NO.	LB	PCT	LB	NO.	LB	PCT	LB
ALABAMA----------	61	11,220	3.70	415	135	10,834	4.32	468	4,818	15,447	3.64	563
ALASKA-----------	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	64	14,560	3.44	501
ARIZONA----------	9	13,732	3.76	517	981	12,923	4.43	572	4,288	17,261	3.46	598
ARKANSAS---------	1	14,690	3.69	542	205	11,205	4.43	496	2,481	15,150	3.40	515
CALIFORNIA-------	219	14,008	3.88	544	2,752	12,355	4.45	550	100,037	18,674	3.56	666
COLORADO---------	20	11,351	3.89	442	158	11,341	4.34	493	7,192	16,354	3.44	563
CONNECTICUT------	494	12,122	3.98	483	1,023	10,229	4.74	485	13,587	15,763	3.70	583
DELAWARE---------	154	12,558	4.30	540	19	10,752	5.09	547	2,331	16,764	3.57	599
FLORIDA----------	208	11,262	3.54	398	331	10,903	4.26	464	2,071	15,405	3.18	490
GEORGIA----------	97	11,634	3.86	449	610	11,517	4.72	544	8,168	15,232	3.61	550
HAWAII-----------	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	665	15,749	3.36	530
IDAHO------------	54	11,551	3.76	434	541	10,196	4.42	451	8,178	15,940	3.53	563
ILLINOIS---------	591	12,063	3.91	472	1,913	10,704	4.67	500	29,281	15,938	3.68	586
INDIANA----------	396	12,576	3.92	493	3,541	11,223	4.75	533	20,674	16,150	3.68	595
IOWA-------------	1,416	11,751	3.91	459	2,194	10,379	4.67	485	29,992	15,217	3.60	548
KANSAS-----------	591	10,834	3.87	420	759	10,581	4.68	496	22,302	15,531	3.56	552
KENTUCKY---------	134	10,130	3.78	382	524	10,339	4.57	472	8,326	15,595	3.51	548
LOUISIANA--------	187	10,137	3.53	358	1,955	10,010	4.31	431	6,338	14,485	3.28	476
MAINE------------	440	13,074	3.89	508	290	10,898	4.66	507	13,386	15,516	3.61	560
MARYLAND---------	510	11,590	3.98	461	1,532	10,032	4.69	471	24,888	15,773	3.64	574
MASSACHUSETTS----	718	11,392	3.94	448	501	11,267	4.56	514	10,388	15,683	3.61	566
MICHIGAN---------	54	12,080	3.91	472	1,972	11,234	4.69	527	40,130	16,308	3.68	601
MINNESOTA--------	817	11,598	3.88	449	3,603	10,501	4.59	482	87,485	15,718	3.60	565
MISSISSIPPI------	226	11,573	3.66	424	372	10,590	4.32	457	3,622	15,236	3.42	520
MISSOURI---------	71	12,275	3.74	459	1,626	10,535	4.58	483	15,354	15,186	3.55	539
MONTANA----------	135	13,247	3.92	519	74	12,018	4.79	575	1,470	15,161	3.56	540
NEBRASKA---------	126	9,993	3.78	378	590	10,216	4.71	481	9,798	15,121	3.60	544
NEVADA-----------	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	564	17,625	3.59	632
NEW HAMPSHIRE----	635	12,251	3.93	481	212	9,849	4.51	445	6,567	15,717	3.63	571
NEW JERSEY-------	15	12,305	4.02	495	290	10,182	4.79	488	10,273	16,105	3.72	600
NEW MEXICO-------	111	12,125	3.71	450	588	11,603	4.22	490	6,221	16,810	3.36	565
NEW YORK---------	3,471	12,124	3.98	482	2,774	10,717	4.67	500	130,045	15,768	3.66	577
NORTH CAROLINA---	214	13,163	3.83	504	689	10,645	4.64	494	23,729	16,557	3.64	602
NORTH DAKOTA-----	(1/)	(1/)	(1/)	(1/)	36	9,529	4.81	459	3,008	14,330	3.59	514
OHIO-------------	1,015	12,237	3.83	469	3,588	11,430	4.63	529	38,391	16,719	3.64	608
OKLAHOMA---------	314	12,505	3.99	499	462	11,792	4.57	539	6,401	16,170	3.52	570
OREGON-----------	170	13,056	3.99	521	1,228	11,154	4.67	521	9,691	16,745	3.64	610
PENNSYLVANIA-----	1,550	12,515	4.04	506	5,431	10,743	4.73	508	114,805	15,876	3.78	600
PUERTO RICO------	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	1,547	11,200	3.14	352
RHODE ISLAND-----	87	12,639	3.95	499	28	8,142	4.58	373	645	15,183	3.60	546
SOUTH CAROLINA---	(1/)	(1/)	(1/)	(1/)	1,821	11,490	4.59	528	5,500	15,829	3.61	571
SOUTH DAKOTA-----	64	10,910	4.08	446	92	12,690	4.50	571	4,756	15,146	3.59	543
TENNESSEE--------	90	12,069	4.06	490	845	10,569	4.55	480	10,861	16,076	3.61	580
TEXAS------------	2	14,245	3.85	549	445	10,327	4.38	452	11,373	16,231	3.38	549
UTAH-------------	4	12,475	4.05	505	4	13,575	4.45	604	8,417	16,762	3.55	596
VERMONT----------	1,408	11,908	3.87	461	413	10,360	4.70	487	24,138	15,098	3.60	543
VIRGINIA---------	537	12,136	3.82	463	2,600	10,426	4.68	488	38,941	15,872	3.59	570
WASHINGTON-------	334	13,433	3.96	531	2,519	11,808	4.67	551	21,509	17,392	3.54	616
WEST VIRGINIA----	98	10,215	3.83	392	225	9,803	4.74	464	6,809	15,558	3.53	549
WISCONSIN--------	783	12,233	3.93	480	6,941	10,874	4.67	508	115,868	16,208	3.75	608
WYOMING----------	1	8,370	3.82	320	22	11,754	4.75	554	511	15,191	3.38	514
UNITED STATES----	18,632	12,051	3.92	472	59,454	10,932	4.62	506	1,077,884	16,174	3.64	588

1/ NO LACTATION RECORDS REPORTED.

TABLE 2.--STATE AND NATIONAL STANDARDIZED LACTATION AVERAGES FOR JERSEY, BROWN SWISS, AND MILKING SHORTHORN COWS ON OFFICIAL TEST, CALVING IN 1976

	JERSEY				BROWN SWISS				MILKING SHORTHORN			
STATE	RECORDS	MILK	FAT	FAT	RECORDS	MILK	FAT	FAT	RECORDS	MILK	FAT	FAT
	NO.	LB	PCT	LB	NO.	LB	PCT	LB	NO.	LB	PCT	LB
ALABAMA----------	2,180	11,168	4.64	519	191	11,875	3.89	461	(1/)	(1/)	(1/)	(1/)
ALASKA-----------	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)
ARIZONA----------	900	11,442	4.82	551	723	16,173	3.86	625	34	11,819	3.59	425
ARKANSAS---------	650	9,375	4.71	442	43	15,230	3.74	569	111	12,796	3.48	446
CALIFORNIA-------	5,727	11,393	4.99	569	647	14,737	4.01	591	134	13,195	3.47	458
COLORADO---------	274	11,217	4.75	532	278	14,733	3.95	581	30	11,102	3.40	377
CONNECTICUT------	327	10,300	5.05	520	276	13,206	4.02	531	(1/)	(1/)	(1/)	(1/)
DELAWARE---------	29	9,378	4.92	461	3	14,967	4.49	672	(1/)	(1/)	(1/)	(1/)
FLORIDA----------	900	9,184	4.25	390	529	12,787	3.50	448	(1/)	(1/)	(1/)	(1/)
GEORGIA----------	1,318	9,674	4.94	478	310	13,489	3.82	515	(1/)	(1/)	(1/)	(1/)
HAWAII-----------	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)
IDAHO------------	1,053	10,354	4.75	492	74	12,327	3.87	477	10	15,760	3.55	559
ILLINOIS---------	1,093	9,435	4.96	468	1,300	13,296	4.06	540	73	12,448	3.74	465
INDIANA----------	1,313	9,493	4.97	472	845	14,255	3.99	569	40	11,139	3.59	400
IOWA-------------	2,092	10,047	4.86	488	2,874	13,302	4.04	538	355	10,368	3.66	380
KANSAS-----------	557	9,631	4.76	459	271	12,928	4.01	518	2	12,045	3.67	443
KENTUCKY---------	2,051	10,226	4.72	483	241	12,151	3.74	454	2	9,490	3.00	285
LOUISIANA--------	1,834	9,131	4.58	418	86	11,772	3.46	407	(1/)	(1/)	(1/)	(1/)
MAINE------------	1,116	11,479	4.82	554	102	11,935	3.99	476	107	8,371	3.65	306
MARYLAND---------	521	8,460	4.99	422	345	12,107	3.87	469	28	10,037	3.61	362
MASSACHUSETTS----	1,055	10,199	4.98	508	51	12,042	3.74	451	31	9,684	3.63	351
MICHIGAN---------	1,667	9,663	5.04	487	269	13,438	3.99	536	5	9,824	4.19	411
MINNESOTA--------	1,850	9,947	4.83	480	1,344	13,133	3.94	517	501	11,564	3.58	413
MISSISSIPPI------	1,742	10,158	4.69	476	15	13,273	4.04	533	(1/)	(1/)	(1/)	(1/)
MISSOURI---------	1,400	9,669	4.89	472	511	12,131	3.95	479	121	11,875	3.76	447
MONTANA----------	15	6,960	4.84	337	39	13,107	4.26	559	(1/)	(1/)	(1/)	(1/)
NEBRASKA---------	108	11,123	4.71	524	414	12,702	4.10	521	186	9,314	3.58	334
NEVADA-----------	536	11,768	4.82	567	10	10,732	4.44	476	(1/)	(1/)	(1/)	(1/)
NEW HAMPSHIRE----	966	10,596	4.88	517	71	10,286	3.96	407	1	9,080	3.70	336
NEW JERSEY-------	336	11,677	4.83	563	81	12,083	3.94	476	(1/)	(1/)	(1/)	(1/)
NEW MEXICO-------	125	11,677	4.90	572	109	12,869	4.03	518	1	9,220	2.86	264
NEW YORK---------	4,074	10,037	5.01	503	1,491	12,819	4.02	516	43	10,461	3.66	383
NORTH CAROLINA---	1,729	10,300	4.96	510	228	12,992	4.07	529	(1/)	(1/)	(1/)	(1/)
NORTH DAKOTA-----	1	6,400	4.20	269	139	12,640	3.99	504	18	10,522	3.71	391
OHIO-------------	4,176	10,587	4.96	525	1,523	14,756	4.07	601	155	11,227	3.73	418
OKLAHOMA---------	685	10,042	4.97	499	206	13,394	4.05	542	152	11,486	3.42	392
OREGON-----------	3,354	10,841	5.09	551	592	14,454	4.10	592	29	10,007	3.97	396
PENNSYLVANIA-----	3,934	10,076	4.97	500	837	13,624	4.12	562	95	11,311	3.76	425
PUERTO RICO------	(1/)	(1/)	(1/)	(1/)	7	10,271	3.34	345	(1/)	(1/)	(1/)	(1/)
RHODE ISLAND-----	5	9,632	4.98	479	4	10,203	3.97	405	(1/)	(1/)	(1/)	(1/)
SOUTH CAROLINA---	3,024	11,536	4.96	572	58	15,537	3.92	608	(1/)	(1/)	(1/)	(1/)
SOUTH DAKOTA-----	117	9,171	5.15	472	295	12,206	4.00	489	74	9,721	3.42	332
TENNESSEE--------	3,764	10,528	4.79	504	412	13,196	4.03	532	(1/)	(1/)	(1/)	(1/)
TEXAS------------	3,116	10,345	4.57	473	1,195	13,391	3.80	509	(1/)	(1/)	(1/)	(1/)
UTAH-------------	625	10,633	4.82	513	34	14,503	4.11	597	3	17,907	3.84	688
VERMONT----------	4,972	10,181	4.89	498	260	13,283	3.98	529	26	11,867	3.57	423
VIRGINIA---------	814	10,392	4.99	518	194	12,698	4.00	507	2	11,280	3.93	443
WASHINGTON-------	3,411	11,473	4.94	567	363	14,877	3.94	586	35	15,965	3.26	521
WEST VIRGINIA----	365	10,286	4.91	505	9	13,756	4.15	571	(1/)	(1/)	(1/)	(1/)
WISCONSIN--------	2,342	10,013	4.94	495	2,550	13,561	4.02	545	276	11,370	3.65	416
WYOMING----------	62	9,183	4.87	447	2	14,905	3.64	543	(1/)	(1/)	(1/)	(1/)
UNITED STATES----	74,305	10,426	4.88	509	22,451	13,500	3.98	538	2,680	11,178	3.60	403

1/ NO LACTATION RECORDS REPORTED.

DISTRIBUTION OF ACTIVE ARTIFICIAL INSEMINATION (AI) SIRES SUMMARIZED BY LEVEL OF PREDICTED DIFFERENCE FOR MILK AND DOLLARS 1/

The average production of daughters and daughters' herdmates of all active AI sires, summarized in the Spring 1978 USDA-DHIA Sire Summary List, was categorized by breed of sire and grouped according to the range of sires' Predicted Difference for milk (PDM) in table 1 and for dollars (PD$) in table 2.

The average PDM's and PD$'s by breed for 3 years were as follows:

Breed	Spring 1976	Spring 1977	Summer 1978	Spring 1976	Spring 1977	Summer 1978
	Milk Lb	Milk Lb	Milk Lb	Dollars	Dollars	Dollars
Ayrshire	516	504	581	44	48	56
Guernsey	428	466	626	37	44	62
Holstein	500	554	753	37	45	63
Jersey	557	635	798	48	61	75
Brown Swiss	440	596	748	38	58	71
Milking Shorthorn	745	743	829	65	72	83
Average	501	558	748	37	47	64

The weighted average PDM increased for the fourth straight year. And all breeds increased in average PDM.

Table 1 shows that in the Summer 1978 Sire Summary, the number of bulls in each breed with PDM of +400 pounds or higher were as follows: 8 of 14 Ayrshires, 38 of 52 Guernseys, 551 of 681 Holsteins, 92 of 103 Jerseys, 38 of 42 Brown Swiss, and 7 of 9 Milking Shorthorns.

Comparison of Summer 1978 data for active AI sires with non-AI sires shows the following:

Breed	Average active AI PDM	Sires above +399 PDM	Sires below 0 PDM	Average non-AI PDM	Sires above +399 PDM	Sires below 0 PDM
	Lb	Pct	Pct	Lb	Pct	Pct
Ayrshire	581	57	0	-14	14	50
Guernsey	626	73	0	39	10	45
Holstein	753	81	4	-47	17	55
Jersey	798	89	1	122	27	40
Brown Swiss	748	90	2	107	25	39
Milking Shorthorn	829	78	0	203	29	33

1/ Prepared by Gerald J. King, dairy husbandman, and James H. Grove, computer programer, Animal Improvement Programs Laboratory, Beltsville Agricultural Research Center, Science and Education Administration, U.S. Department of Agriculture, Beltsville, Md. 20705.

Breed	Average active AI PD$	Sires above +39 PD$	Sires below 0 PD$	Average non-AI PD$	Sires above +39 PD$	Sires below 0 PD$
		Pct	Pct		Pct	Pct
Ayrshire	56	79	0	-1	14	51
Guernsey	62	71	2	3	10	44
Holstein	63	74	5	-7	11	59
Jersey	75	84	0	10	27	42
Brown Swiss	71	86	2	9	22	40
Milking Shorthorn	83	89	0	21	30	29

Interpretation of Data

A zero Predicted Difference in tables 1 and 2 indicates that a sire with zero PD, used in breed average herds, has about one-half of his daughters above and about one-half below breed average. He can be expected to transmit somewhat less than breed average production to his future progeny because of genetic improvement across the years. In general, the bulls with minus PD's sire daughters of which more than 50 percent are below breed average in production. Bulls with higher PD's are expected to sire daughters with higher production than bulls with lower PD's regardless of herd production level.

What These Data Mean to Dairy Farmers

Dairy farmers who derive most of their income from the sale of milk should, of course, be using sires with high plus PD's. These tables indicate that the availability of AI sires with plus PD's is sufficient in all breeds to fulfill the requirements of the industry for a pool of germ plasm that will assure a steady increase in production in future generations. The distribution of PD's shown in table 1 indicates that a great deal more selection for increased production could be practiced. If sires with PDM's below zero are used in breed average herds, the probability that they will transmit at least breed average milk production to their daughters is less than 50 percent. 2/ The use of bulls with minus or zero PD's should be avoided. Dairy farmers should be aware that if they use such bulls to breed cows in the same environment, most can expect to have lower herd averages in the future.

2/ April 1968 Dairy Herd Improvement Letter, ARS 44-202, pp. 21-23.

TABLE 1.--AVERAGE PRODUCTION OF MILK AND MILK-FAT OF DAUGHTERS OF SIRES IN ACTIVE AI SERVICE, GROUPED ACCORDING TO RANGE OF PREDICTED DIFFERENCE FOR MILK, SUMMER 1978

PRED. DIFF. MILK RANGE	SIRES IN GROUP	SIRES IN GROUP	DAUGHTERS W/HM	DAUGHTER RECORDS	AVERAGE PRODUCTION DAUGHTERS MILK	FAT	FAT	HERDMATES MILK	FAT	FAT	PREDICTED DIFFERENCES MILK	FAT	FAT	$
LB	NO.	PCT	NO.	NO.	LB	PCT	LB	LB	PCT	LB	LB	PCT	LB	
AYRSHIRE														
+1400 TO +1599	1	7.1	561	942	13,160	3.8	506	12,150	3.9	475	+1,400	-.10	+43	+126
+800 TO +999	2	14.3	285	570	12,841	3.8	488	12,241	3.9	472	+884	-.08	+26	+78
+600 TO +799	5	35.7	1,205	2,320	12,187	3.9	478	11,786	3.9	464	+690	-.03	+24	+65
+200 TO +399	4	28.6	1,382	2,719	11,856	4.0	470	11,900	3.9	464	+353	+.04	+18	+40
0 TO +199	2	14.3	374	888	11,362	3.9	444	11,768	3.9	458	+55	+.01	+3	+6
TOTAL OR SIRE AVERAGE	14		3,807	7,439	12,137	3.9	474	11,907	3.9	465	+581	-.02	+21	+56
GUERNSEY														
+1200 TO +1399	5	9.6	579	877	12,225	4.7	570	11,172	4.6	515	+1,254	.00	+59	+136
+1000 TO +1199	2	3.8	172	228	11,870	4.6	545	11,054	4.6	513	+1,109	-.07	+45	+112
+800 TO +999	10	19.2	2,479	4,237	11,694	4.5	525	10,902	4.6	506	+869	-.12	+29	+81
+600 TO +799	6	11.5	2,342	3,990	11,306	4.6	523	10,777	4.7	512	+668	-.09	+23	+63
+400 TO +599	15	28.8	1,270	2,289	11,139	4.6	514	10,821	4.6	502	+521	-.07	+18	+49
+200 TO +399	10	19.2	1,212	2,160	11,350	4.6	526	11,319	4.6	522	+308	-.02	+13	+32
0 TO +199	4	7.7	1,120	1,799	11,093	4.6	510	11,523	4.6	530	+118	-.04	+2	+9
TOTAL OR SIRE AVERAGE	52		9,174	15,580	11,435	4.6	526	11,024	4.6	512	+626	-.06	+24	+62
HOLSTEIN														
+2000 AND UP	3	.4	4,316	5,700	18,154	3.4	623	16,368	3.6	593	+2,081	-.22	+40	+160
+1800 TO +1999	3	.4	612	753	18,472	3.5	651	16,720	3.6	609	+1,938	-.16	+45	+158
+1600 TO +1799	9	1.3	1,633	2,000	17,823	3.6	636	16,303	3.6	589	+1,688	-.12	+43	+142
+1400 TO +1599	32	4.7	43,479	89,487	18,154	3.5	643	16,646	3.6	604	+1,486	-.12	+36	+123
+1200 TO +1399	47	6.9	27,392	63,681	17,706	3.6	630	16,575	3.6	599	+1,283	-.09	+32	+107
+1000 TO +1199	90	13.2	47,389	92,291	17,535	3.6	624	16,638	3.6	599	+1,094	-.08	+28	+92
+800 TO +999	132	19.4	65,063	135,139	16,950	3.6	607	16,410	3.6	593	+904	-.07	+22	+75
+600 TO +799	129	18.9	68,132	133,422	16,749	3.6	604	16,448	3.6	595	+708	-.06	+17	+58
+400 TO +599	106	15.6	42,894	82,338	16,198	3.6	588	16,104	3.6	584	+511	-.04	+12	+42
+200 TO +399	58	8.5	11,187	19,063	15,939	3.7	586	16,167	3.6	586	+304	.00	+11	+29
0 TO +199	42	6.2	6,762	10,049	15,528	3.7	575	16,082	3.6	584	+93	.00	+3	+9
-199 TO -1	18	2.6	3,726	7,280	15,547	3.8	584	16,235	3.7	597	-95	+.02	0	-5
-399 TO -200	6	.9	9,694	21,840	15,270	3.7	564	15,994	3.7	590	-275	.00	-10	-27
-599 TO -400	2	.3	285	393	15,332	3.6	546	16,253	3.6	579	-438	-.04	-21	-48
-799 TO -600	2	.3	68	117	14,174	3.8	534	15,475	3.6	552	-633	+.08	-12	-49
-999 TO -800	2	.3	406	796	14,240	3.6	509	15,939	3.7	585	-964	-.10	-48	-108
TOTAL OR SIRE AVERAGE	681		333,038	664,349	16,758	3.6	604	16,368	3.6	593	+753	-.06	+19	+63
JERSEY														
+1800 TO +1999	2	1.9	132	188	12,217	4.6	568	10,284	5.0	510	+1,864	-.36	+56	+167
+1600 TO +1799	1	1.0	139	234	12,041	4.9	588	10,962	4.9	538	+1,622	-.13	+68	+167
+1400 TO +1599	5	4.9	112	208	12,913	4.6	597	11,785	4.9	579	+1,509	-.35	+40	+129
+1200 TO +1399	5	4.9	326	559	11,827	4.6	548	11,026	4.8	534	+1,251	-.29	+34	+108
+1000 TO +1199	14	13.6	813	1,361	11,526	4.8	556	10,902	4.9	534	+1,082	-.20	+35	+100
+800 TO +999	19	18.4	2,536	4,535	10,999	4.9	535	10,582	4.9	516	+901	-.13	+33	+87
+600 TO +799	26	25.2	7,949	15,272	10,811	4.9	530	10,619	4.9	520	+703	-.09	+27	+70
+400 TO +599	20	19.4	2,346	3,999	10,456	4.9	507	10,476	4.9	509	+513	-.11	+16	+47
+200 TO +399	6	5.8	540	1,026	9,852	5.0	490	10,100	5.0	502	+323	-.05	+12	+31
0 TO +199	4	3.9	591	1,297	9,576	5.0	480	9,839	4.9	482	+108	-.01	+5	+12
-199 TO -1	1	1.0	17	19	9,692	5.5	531	10,451	5.0	519	-92	+.17	+10	+6
TOTAL OR SIRE AVERAGE	103		15,501	28,698	10,950	4.9	531	10,634	4.9	520	+798	-.14	+27	+75
BROWN SWISS														
+2000 AND UP	1	2.4	70	164	15,193	3.8	584	13,309	4.0	529	+2,269	-.15	+70	+205
+1600 TO +1799	2	4.8	150	187	15,282	3.9	593	14,085	4.0	567	+1,658	-.16	+45	+143
+1200 TO +1399	3	7.1	2,386	4,010	14,005	4.0	562	13,348	4.0	536	+1,299	-.03	+48	+126
+1000 TO +1199	3	7.1	367	556	15,402	3.8	583	14,281	4.0	565	+1,082	-.12	+28	+92
+800 TO +999	5	11.9	311	457	13,944	3.9	538	13,345	3.9	524	+917	-.05	+30	+85
+600 TO +799	8	19.0	785	1,595	13,380	4.0	540	12,864	4.0	514	+716	-.01	+27	+70
+400 TO +599	16	38.1	1,913	3,738	13,443	4.0	541	13,262	4.0	533	+488	-.01	+18	+47
+200 TO +399	3	7.1	97	166	13,845	4.1	570	14,084	4.0	569	+346	+.02	+16	+37
-599 TO -400	1	2.4	26	28	12,190	4.2	512	14,157	4.0	561	-469	+.10	-8	-35
TOTAL OR SIRE AVERAGE	42		6,105	10,901	13,799	4.0	550	13,395	4.0	536	+748	-.03	+26	+71

[illegible] MILK-FAT [illegible]

					AVERAGE PRODUCTION									
PRED. DIFF.	SIRES	SIRES	DAUGHTERS	DAUGHTER	DAUGHTERS			HERDMATES			PREDICTED DIFFERENCES			
MILK RANGE	IN GROUP	IN GROUP	W/HM	RECORDS	MILK	FAT	FAT	MILK	FAT	FAT	MILK	FAT	FAT	$
LB	NO.	PCT	NO.	NO.	LB	PCT	LB	LB	PCT	LB	LB	PCT	LB	
MILKING SHORTHORN														
+1400 TO +1599	2	22.2	217	463	13,353	3.7	488	11,829	3.6	427	+1,515	+.06	+62	+154
+800 TO +999	3	33.3	220	494	11,459	3.6	408	10,869	3.6	394	+876	-.02	+30	+82
+600 TO +799	1	11.1	26	55	11,149	3.6	404	10,954	3.6	392	+685	+.03	+28	+70
+400 TO +599	1	11.1	93	183	9,973	3.8	381	10,308	3.8	392	+406	+.08	+23	+49
+200 TO +399	2	22.2	44	63	10,615	3.8	404	11,303	3.7	421	+356	+.05	+18	+40
TOTAL OF SIRE AVERAGE	9		600	1,258	11,492	3.7	421	11,126	3.7	407	+829	+.02	+33	+83
AVERAGE PRODUCTION AND PD VALUES FOR ALL SIRES	901		368,225	728,225	15,524	3.8	585	15,144	3.8	573	+748	-.05	+20	+64

TABLE 3.--AVERAGE PRODUCTION OF MILK AND MILK-FAT OF DAUGHTERS OF SIRES IN ACTIVE AI SERVICE, GROUPED ACCORDING TO RANGE OF PREDICTED DIFFERENCE FOR DOLLARS, SUMMER 1978

PRED. DIFF. DOLLAR RANGE	SIRES IN GROUP	SIRES IN GROUP	DAUGHTERS W/HM	DAUGHTER RECORDS	AVERAGE PRODUCTION DAUGHTERS MILK	FAT	FAT	HERDMATES MILK	FAT	FAT	PREDICTED DIFFERENCES MILK	FAT	FAT	$
	NO.	PCT	NO.	NO.	LB	PCT	LB	LB	PCT	LB	LB	PCT	LB	
AYRSHIRE														
+120 TO +139	1	7.1	561	942	13,160	3.8	506	12,150	3.9	475	+1,400	-.10	+43	+126
+80 TO +99	2	14.3	183	365	12,854	3.9	499	12,112	3.8	466	+875	+.03	+38	+92
+60 TO +79	3	21.4	703	1,491	11,986	3.9	468	11,548	4.0	457	+734	-.07	+21	+64
+40 TO +59	5	35.7	1,972	3,736	12,038	4.0	477	12,089	3.9	475	+458	.00	+18	+46
+20 TO +39	1	7.1	14	17	12,185	3.8	457	11,695	3.8	439	+387	-.01	+14	+37
0 TO +19	2	14.3	374	888	11,362	3.9	444	11,768	3.9	458	+55	+.01	+3	+6
TOTAL OR SIRE AVERAGE	14		3,807	7,439	12,137	3.9	474	11,907	3.9	465	+581	-.02	+21	+56
GUERNSEY														
+140 TO +159	3	5.8	252	358	12,253	4.7	574	11,064	4.6	507	+1,276	+.04	+64	+143
+120 TO +139	1	1.9	208	280	12,988	4.8	621	12,247	4.7	581	+1,226	.00	+58	+134
+100 TO +119	5	9.6	2,356	4,023	11,678	4.6	540	10,959	4.6	504	+1,040	-.01	+48	+112
+80 TO +99	2	3.8	92	199	12,148	4.5	549	11,172	4.7	520	+865	-.11	+30	+82
+60 TO +79	13	25.0	2,355	4,203	11,454	4.6	524	10,798	4.7	508	+733	-.10	+25	+69
+40 TO +59	13	25.0	1,314	2,088	11,162	4.6	517	10,884	4.7	506	+510	-.05	+19	+50
+20 TO +39	11	21.2	1,483	2,654	11,104	4.6	507	10,989	4.6	504	+353	-.06	+11	+32
0 TO +19	3	5.8	60	84	11,803	4.5	537	12,331	4.6	566	+154	-.06	+2	+11
-19 TO -1	1	1.9	1,054	1,691	10,603	4.5	477	10,931	4.7	509	+65	-.17	-13	-11
TOTAL OR SIRE AVERAGE	52		9,174	15,580	11,435	4.6	526	11,024	4.6	512	+626	-.06	+24	+62
HOLSTEIN														
+160 TO +179	6	.9	4,530	5,983	17,969	3.6	640	16,093	3.6	581	+1,916	-.12	+51	+164
+140 TO +159	11	1.6	16,831	41,905	18,222	3.6	657	16,627	3.6	601	+1,656	-.06	+51	+149
+120 TO +139	32	4.7	28,047	48,648	17,921	3.6	647	16,606	3.6	601	+1,427	-.06	+43	+128
+100 TO +119	52	7.6	49,849	116,681	17,695	3.6	640	16,629	3.6	604	+1,237	-.06	+36	+109
+80 TO +99	120	17.6	49,531	84,470	17,337	3.6	623	16,604	3.6	598	+1,018	-.05	+29	+89
+60 TO +79	153	22.5	62,551	126,685	16,837	3.6	606	16,335	3.6	590	+829	-.06	+21	+70
+40 TO +59	132	19.4	48,477	92,911	16,511	3.6	595	16,296	3.6	591	+627	-.06	+14	+51
+20 TO +39	92	13.5	53,068	109,785	16,151	3.6	581	16,208	3.6	588	+427	-.07	+6	+30
0 TO +19	48	7.0	5,124	8,083	15,760	3.7	578	16,232	3.6	588	+161	-.03	+2	+11
-19 TO -1	19	2.8	5,204	7,138	15,303	3.7	559	15,979	3.7	587	-7	-.04	-6	-7
-39 TO -20	9	1.3	8,950	20,498	15,232	3.6	549	15,848	3.7	581	-159	-.07	-15	-26
-59 TO -40	5	.7	470	766	15,100	3.7	552	16,017	3.6	578	-490	+.01	-17	-46
-99 TO -80	1	.1	27	33	14,020	3.6	510	16,188	3.7	597	-931	-.05	-40	-97
-119 TO -100	1	.1	379	763	14,459	3.5	508	15,690	3.6	572	-996	-.14	-55	-118
TOTAL OR SIRE AVERAGE	681		333,038	564,349	16,758	3.6	604	16,368	3.6	593	+753	-.06	+19	+63
JERSEY														
+160 TO +179	3	2.9	271	422	12,158	4.7	574	10,510	4.9	519	+1,783	-.28	+60	+167
+120 TO +139	4	3.9	92	183	12,857	4.7	601	11,690	4.9	573	+1,518	-.33	+43	+133
+100 TO +119	15	14.6	1,865	3,125	11,887	4.8	572	11,175	4.9	545	+1,140	-.19	+39	+107
+80 TO +99	27	26.2	3,919	7,316	10,943	4.9	536	10,529	4.9	515	+901	-.11	+35	+90
+60 TO +79	16	15.5	3,764	8,159	10,849	4.9	529	10,603	4.9	520	+748	-.11	+27	+72
+40 TO +59	22	21.4	3,919	6,407	10,594	4.8	512	10,548	4.9	514	+576	-.13	+17	+51
+20 TO +39	10	9.7	1,044	1,751	10,236	4.8	496	10,411	4.9	511	+415	-.14	+8	+32
0 TO +19	6	5.8	627	1,335	9,527	5.0	479	9,878	4.9	484	+97	-.01	+4	+10
TOTAL OR SIRE AVERAGE	103		15,501	28,698	10,950	4.9	531	10,634	4.9	520	+798	-.14	+27	+75
BROWN SWISS														
+200 AND UP	1	2.4	70	164	15,193	3.8	584	13,309	4.0	529	+2,269	-.15	+70	+205
+140 TO +159	2	4.8	557	869	14,511	4.1	591	13,604	4.1	551	+1,514	-.02	+59	+151
+120 TO +139	2	4.8	1,934	3,261	14,845	3.9	574	13,957	4.0	558	+1,460	-.14	+40	+126
+100 TO +119	3	7.1	283	423	13,675	4.0	552	13,080	4.0	527	+1,101	-.04	+39	+105
+80 TO +99	7	16.7	871	1,502	14,159	4.0	559	13,508	4.0	536	+880	-.04	+31	+84
+60 TO +79	8	19.0	418	880	13,653	4.0	541	12,975	4.0	518	+697	-.02	+26	+68
+40 TO +59	13	31.0	1,534	3,140	13,572	4.0	545	13,441	4.0	539	+500	-.02	+18	+48
+20 TO +39	5	11.9	412	634	13,530	4.0	537	13,538	4.0	543	+426	-.06	+10	+35
-39 TO -20	1	2.4	26	28	12,190	4.2	512	14,157	4.0	561	-469	+.10	-8	-35
TOTAL OR SIRE AVERAGE	42		6,105	10,901	13,799	4.0	550	13,395	4.0	536	+748	-.03	+26	+71

[illegible] SERVICE, [illegible] F
[illegible] DOLLARS, SUMMER 197[illegible]--[illegible]

PRED. DIFF. DOLLAR RANGE	SIRES IN GROUP	SIRES IN GROUP	DAUGHTERS W/BM	DAUGHTER RECORDS	AVERAGE PRODUCTION DAUGHTERS MILK	FAT	FAT	HERDMATES MILK	FAT	FAT	PREDICTED DIFFERENCES MILK	FAT	FAT	$
	NO.	PCT	NO.	NO.	LB	PCT	LB	LB	PCT	LB	LB	PCT	LB	
MILKING SHORTHORN														
+140 TO +159	2	22.2	217	463	13,353	3.7	488	11,829	3.6	427	+1,515	+.06	+62	+154
+80 TO +99	3	33.3	220	494	11,459	3.6	408	10,869	3.6	394	+876	-.02	+30	+82
+60 TO +79	1	11.1	26	55	11,149	3.6	404	10,954	3.6	392	+685	+.03	+28	+70
+40 TO +59	2	22.2	124	229	10,117	3.8	389	10,537	3.8	398	+377	+.08	+22	+46
+20 TO +39	1	11.1	13	17	10,969	3.7	411	11,841	3.7	438	+363	+.02	+15	+37
TOTAL OR SIRE AVERAGE	9		600	1,258	11,492	3.7	421	11,126	3.7	407	+829	+.02	+33	+83
AVERAGE PRODUCTION AND PD VALUES FOR ALL SIRES	901		368,225	728,225	15,524	3.8	585	15,144	3.8	573	+748	-.05	+20	+64

OFFICIAL LACTATION RECORDS RECEIVED BY USDA IN 1977, BY STATE, WITH SUMMARY OF ERRORS, CONFLICTS, AND SIRE IDENTIFICATION FOR 1974-77 1/

A total of 2,630,906 Official Dairy Herd Improvement (Official DHI) and Dairy Herd Improvement Registry (DHIR) lactation records were reported to USDA in 1977 for use in research on the genetic quality of dairy sires and cows. However, a large number of these records could not be used for the intended purpose because of a number of errors or conflicts.

Table 1 shows the ranking of States by percentage of usable records for 1974 through 1977. For 1974, the percentage ranged from 2.7 to 76.3. By 1977, the range was from 10.3 to 97.1. Several things need to be said about the percentages. The 97.1 percentage is calculated on fewer than 100 records, and the next highest percentage is 71.1. The low percentage of usable records in several States is probably due to the increase in the number of cows that have been put on production testing in the last 2 years. When large numbers of cows are entered on test at the same time, it is very likely that many of the cows are not identified by sire. It would be beneficial both to dairy farmers and to the research effort for more cows to be identified by sire.

Table 2 shows the ranking of States by groups of the number of records received by each State for 1974 through 1977. With one exception, the percentage of usable records is similar in all groups; only the 30,001-40,000 record group shows lower percentages throughout. The next two groups--40,001-50,000 and 50,001-100,000--begin with lower percentages, but it appears that the number of records alone does not determine the percentage of usable records in a State.

Table 3 shows the number of records reported for each State for 1977, as well as the number of usable and not-usable records. The count includes records for the USDA-DHIA Sire Summary runs of Spring 1977, Fall 1977, and Winter 1978. Of the 2,630,906 official lactation records submitted to USDA in 1977, 1,328,610, or 50.5 percent, were not used for genetic evaluation of sires and cows.

Table 4 shows counts for groups of errors or conflicts noted in 1977. As many as four errors and/or conflicts may be coded for a single record.

Table 5 shows the percentages applicable to the numbers in table 4.

Table 6 shows the numbers and percentages of reported sire numbers that were nonzero and zero for 1977, by State. Some States' year-to-year comparisons may not be appropriate because of large fluctuations in the number of records reported from year to year.

1/ Prepared by Gerald J. King, dairy husbandman, and Evelyn F. Myers, statistical assistant, Animal Improvement Programs Laboratory, Beltsville Agricultural Research Center, Science and Education Administration, U.S. Department of Agriculture, Beltsville, Md. 20705.

In 1977, missing sire identification (ID) continued to be the main reason why many Official DHI and DHIR records are not useful in sire and cow evaluation.

Summary of Official Lactation Records Received by USDA Since 1957

Table 7 shows a summary of the numbers of official lactation records received since 1957. The number of records received annually has increased from just over one-half of a million in 1957 to over 2-1/2 million in 1977. The percentage of Official DHI and DHIR cows represented has increased from 38.2 percent in 1957 to 101.9 percent in 1977, when 2,581,164 cows were enrolled and 2,630,906 records were received. (Percentages exceeding 100 are possible because of varying reporting and processing procedures.)

Table 7 also shows the trend between 1969 and 1977 in percentages of Official DHI and DHIR lactations reported to USDA with missing sire ID, losses due to other errors found in editing, and the number of records used. There was an increase in the percentage of cows without sire ID this year, after 3 years of decreasing percentage. The numbers and percentages of lactations rejected by other errors or conflicts and of lactation records used have been changed for 1975 and 1976 to equate the sum of records used and not used each year with the records received each year.

TABLE 1.--RANKING OF STATES BY PERCENTAGE OF USABLE RECORDS, 1974-77

	1974		1975		1976		1977	
RANK	STATE	PCT	STATE	PCT	STATE	PCT	STATE	PCT
1	ALASKA	76.3	ALASKA	79.5	ALASKA	88.4	ALASKA	97.1
2	NEW HAMPSHIRE	74.5	MAINE	71.6	PENNSYLVANIA	72.3	PENNSYLVANIA	71.1
3	RHODE ISLAND	73.8	NEW HAMPSHIRE	71.3	MAINE	72.1	MAINE	69.7
4	MAINE	73.8	PENNSYLVANIA	71.2	NEW HAMPSHIRE	71.5	NEW HAMPSHIRE	69.5
5	PENNSYLVANIA	73.7	VERMONT	68.0	VERMONT	69.1	NEW YORK	68.4
6	DELAWARE	69.5	NEW YORK	67.2	NEW YORK	68.8	VERMONT	67.2
7	VERMONT	69.1	NEW JERSEY	66.3	RHODE ISLAND	66.8	MASSACHUSETTS	66.7
8	NEW YORK	68.8	CONNECTICUT	65.6	NEW JERSEY	66.4	NEW JERSEY	66.0
9	NEW JERSEY	67.8	RHODE ISLAND	64.5	DELAWARE	64.3	CONNECTICUT	64.8
10	CONNECTICUT	65.9	DELAWARE	63.7	CONNECTICUT	63.5	DELAWARE	63.0
11	ILLINOIS	62.4	MASSACHUSETTS	62.2	MASSACHUSETTS	62.8	RHODE ISLAND	62.3
12	MASSACHUSETTS	62.0	ILLINOIS	60.7	WEST VIRGINIA	59.6	WEST VIRGINIA	59.9
13	WISCONSIN	62.0	ARKANSAS	58.6	MINNESOTA	58.5	MINNESOTA	59.0
14	INDIANA	60.7	WISCONSIN	58.0	ILLINOIS	57.8	ILLINOIS	56.9
15	ARKANSAS	58.9	MINNESOTA	56.2	WISCONSIN	57.6	KANSAS	55.9
16	MARYLAND	58.8	WEST VIRGINIA	55.7	ARKANSAS	56.2	VIRGINIA	55.7
17	WYOMING	57.7	INDIANA	54.1	VIRGINIA	55.5	NORTH DAKOTA	55.6
18	MINNESOTA	57.6	IOWA	54.0	NORTH DAKOTA	55.4	WISCONSIN	55.2
19	VIRGINIA	57.5	VIRGINIA	53.9	IOWA	55.2	OHIO	54.7
20	IOWA	56.9	KANSAS	53.3	INDIANA	54.7	IOWA	54.4
21	KANSAS	56.4	OHIO	52.0	OHIO	54.5	MARYLAND	54.4
22	SOUTH DAKOTA	56.3	MARYLAND	52.0	MARYLAND	54.4	INDIANA	53.5
23	OHIO	55.8	SOUTH DAKOTA	51.2	KANSAS	54.0	SOUTH DAKOTA	52.2
24	NEVADA	55.1	NORTH DAKOTA	50.3	MISSOURI	52.2	MISSOURI	49.1
25	LOUISIANA	54.2	MICHIGAN	48.9	SOUTH DAKOTA	50.2	MICHIGAN	47.6
26	NEW MEXICO	53.6	MISSOURI	48.2	MONTANA	47.8	NEBRASKA	46.1
27	WEST VIRGINIA	53.5	NEW MEXICO	47.7	MICHIGAN	47.6	NORTH CAROLINA	44.2
28	MISSOURI	51.1	MONTANA	47.3	NEW MEXICO	46.7	ARKANSAS	43.6
29	NORTH DAKOTA	49.9	NEVADA	44.5	NEBRASKA	46.0	KENTUCKY	42.8
30	KENTUCKY	49.4	WYOMING	43.2	NORTH CAROLINA	45.2	MONTANA	41.1
31	TEXAS	48.8	NORTH CAROLINA	43.0	KENTUCKY	44.9	OREGON	40.5
32	MONTANA	48.6	KENTUCKY	42.5	TEXAS	42.8	OKLAHOMA	39.1
33	MICHIGAN	48.5	NEBRASKA	42.1	OREGON	40.6	TEXAS	38.4
34	NORTH CAROLINA	47.0	OREGON	40.7	OKLAHOMA	40.3	LOUISIANA	37.8
35	OREGON	45.1	TEXAS	40.3	SOUTH CAROLINA	39.5	NEW MEXICO	37.7
36	NEBRASKA	43.9	WASHINGTON	36.8	WASHINGTON	38.9	SOUTH CAROLINA	37.7
37	SOUTH CAROLINA	42.6	TENNESSEE	36.7	NEVADA	38.3	TENNESSEE	37.7
38	WASHINGTON	42.2	OKLAHOMA	35.8	TENNESSEE	38.3	WASHINGTON	37.7
39	COLORADO	41.4	SOUTH CAROLINA	35.5	LOUISIANA	37.8	GEORGIA	33.7
40	TENNESSEE	40.9	LOUISIANA	35.3	COLORADO	37.3	UTAH	33.5
41	UTAH	38.6	IDAHO	32.4	WYOMING	34.9	FLORIDA	33.0
42	OKLAHOMA	38.4	UTAH	32.4	IDAHO	33.6	CALIFORNIA	32.6
43	FLORIDA	37.7	COLORADO	30.8	FLORIDA	33.3	IDAHO	32.0
44	IDAHO	36.5	GEORGIA	30.3	GEORGIA	32.7	ALABAMA	30.0
45	MISSISSIPPI	35.7	MISSISSIPPI	29.5	CALIFORNIA	32.2	WYOMING	29.9
46	GEORGIA	33.0	FLORIDA	29.0	UTAH	31.7	NEVADA	28.1
47	CALIFORNIA	31.5	CALIFORNIA	28.6	ALABAMA	30.3	MISSISSIPPI	27.0
48	ALABAMA	31.1	ALABAMA	27.2	MISSISSIPPI	30.3	COLORADO	26.0
49	ARIZONA	22.0	ARIZONA	19.8	ARIZONA	26.4	ARIZONA	25.9
50	HAWAII	2.7	HAWAII	2.5	PUERTO RICO	9.2	HAWAII	21.0
51					HAWAII	3.8	PUERTO RICO	10.3

TABLE 2.--RANKING OF STATES WITHIN GROUPS BY PERCENTAGE OF USABLE RECORDS, 1974-77

RANK	LACTATION RECORDS RECEIVED	1974		1975		1976		1977	
		STATE	PCT	STATE	PCT	STATE	PCT	STATE	PCT
	NO.								
1	UP TO	ALASKA	76.3	ALASKA	79.5	ALASKA	88.4	ALASKA	97.1
2	10,000	RHODE ISLAND	73.8	RHODE ISLAND	64.5	RHODE ISLAND	66.8	DELAWARE	63.0
3		DELAWARE	69.5	DELAWARE	63.7	DELAWARE	64.3	RHODE ISLAND	62.3
4		ARKANSAS	58.9	ARKANSAS	58.6	ARKANSAS	56.2	NORTH DAKOTA	55.6
5		WYOMING	57.7	NORTH DAKOTA	50.3	NORTH DAKOTA	55.4	ARKANSAS	43.6
6		NEVADA	55.1	MONTANA	47.3	MONTANA	47.8	MONTANA	41.1
7		NORTH DAKOTA	49.9	NEVADA	44.5	NEVADA	38.3	WYOMING	29.9
8		MONTANA	48.6	WYOMING	43.2	WYOMING	34.9	NEVADA	28.1
9		HAWAII	2.7	HAWAII	2.5	HAWAII	3.B	HAWAII	21.0
1	10,001	NEW HAMPSHIRE	74.5	NEW HAMPSHIRE	71.3	NEW HAMPSHIRE	71.5	NEW HAMPSHIRE	69.5
2	TO	NEW JERSEY	67.8	NEW JERSEY	66.3	NEW JERSEY	66.4	MASSACHUSETTS	66.7
3	20,000	MASSACHUSETTS	62.0	MASSACHUSETTS	62.2	MASSACHUSETTS	62.8	NEW JERSEY	66.0
4		SOUTH DAKOTA	56.3	WEST VIRGINIA	55.7	WEST VIRGINIA	59.6	WEST VIRGINIA	59.9
5		NEW MEXICO	53.6	SOUTH DAKOTA	51.2	SOUTH DAKOTA	50.2	SOUTH DAKOTA	52.2
6		WEST VIRGINIA	53.5	NEW MEXICO	47.7	NEW MEXICO	46.7	FLORIDA	33.0
7				MISSISSIPPI	29.5	FLORIDA	33.3	MISSISSIPPI	27.0
8						PUERTO RICO	9.2	PUERTO RICO	10.3
1	20,001	MAINE	73.8	MAINE	71.6	MAINE	72.1	MAINE	69.7
2	TO	CONNECTICUT	65.9	CONNECTICUT	65.6	CONNECTICUT	63.5	CONNECTICUT	64.8
3	30,000	LOUISIANA	54.2	KENTUCKY	42.5	NEBRASKA	46.0	NEBRASKA	46.1
4		KENTUCKY	49.4	NEBRASKA	42.1	KENTUCKY	44.9	KENTUCKY	42.E
5		COLORADO	41.4	OKLAHOMA	35.8	OKLAHOMA	40.3	OKLAHOMA	39.1
6		FLORIDA	37.7	SOUTH CAROLINA	35.5	SOUTH CAROLINA	39.5	LOUISIANA	37.8
7		MISSISSIPPI	35.7	LOUISIANA	35.3	LOUISIANA	37.8	NEW MEXICO	37.7
8		ARIZONA	22.0	IDAHO	32.4	COLORADO	37.3	SOUTH CAROLINA	37.7
9				COLORADO	30.8	ALABAMA	30.3	ALABAMA	30.0
10				FLORIDA	29.0	MISSISSIPPI	30.3	COLORADO	26.0
11				ALABAMA	27.2				
1	30,001	TEXAS	48.8	OREGON	40.7	TEXAS	42.8	OREGON	40.5
2	TO	OREGON	45.1	TEXAS	40.3	OREGON	40.6	GEORGIA	33.7
3	40,000	NEBRASKA	43.9	TENNESSEE	36.7	TENNESSEE	38.3	UTAH	33.5
4		SOUTH CAROLINA	42.6	UTAH	32.4	IDAHO	33.6	IDAHO	32.6
5		TENNESSEE	40.9	GEORGIA	30.3	GEORGIA	32.7		
6		UTAH	38.6	ARIZONA	19.8	UTAH	31.7		
7		OKLAHOMA	38.4			ARIZONA	26.4		
8		IDAHO	36.5						
9		GEORGIA	33.0						
10		ALABAMA	31.1						
1	40,001	VERMONT	69.1	VERMONT	68.0	VERMONT	69.1	VERMONT	67.2
2	TO	MARYLAND	41.2	INDIANA	54.1	INDIANA	54.7	KANSAS	55.9
3	50,000	INDIANA	60.7	MARYLAND	52.0	MARYLAND	54.4	MARYLAND	54.4
4				MISSOURI	48.2	MISSOURI	52.2	MISSOURI	49.1
5								TEXAS	38.4
6								TENNESSEE	37.7
7								ARIZONA	25.9
1	50,001	ILLINOIS	62.4	ILLINOIS	60.7	ILLINOIS	57.8	ILLINOIS	56.9
2	TO	VIRGINIA	57.5	IOWA	54.0	VIRGINIA	55.5	VIRGINIA	55.7
3	100,000	IOWA	56.9	VIRGINIA	53.9	IOWA	55.2	OHIO	54.7
4		KANSAS	56.4	KANSAS	53.3	OHIO	54.5	IOWA	54.4
5		OHIO	55.8	OHIO	52.0	KANSAS	54.0	INDIANA	53.5
6		MISSOURI	51.1	MICHIGAN	48.9	MICHIGAN	47.6	MICHIGAN	47.6
7		MICHIGAN	48.5	NORTH CAROLINA	43.0	NORTH CAROLINA	45.2	NORTH CAROLINA	44.2
8		NORTH CAROLINA	47.0	WASHINGTON	36.8	WASHINGTON	38.9	WASHINGTON	37.7
9		WASHINGTON	42.2						
1	OVER	PENNSYLVANIA	73.7	PENNSYLVANIA	71.2	PENNSYLVANIA	72.3	PENNSYLVANIA	71.1
2	100,000	NEW YORK	68.8	NEW YORK	67.2	NEW YORK	68.8	NEW YORK	68.4
3		WISCONSIN	62.0	WISCONSIN	58.0	MINNESOTA	58.5	MINNESOTA	59.0
4		MINNESOTA	57.6	MINNESOTA	56.2	WISCONSIN	57.6	WISCONSIN	55.2
5		CALIFORNIA	31.5	CALIFORNIA	28.2	CALIFORNIA	32.2	CALIFORNIA	32.6

TABLE 3.--LACTATION RECORDS RECEIVED BY USDA IN 1977 FOR BULL AND COW EVALUATIONS 1/

STATE	OFFICIAL DHI AND DHIR COWS ON TEST 1-1-77	LACTATION RECORDS RECEIVED	PERCENTAGE OF COWS ENROLLED IN OFFICIAL DHI AND DHIR 2/	USABLE RECORDS	NOT USABLE RECORDS
	NO.	NO.		NO.	NO.
ALABAMA----------	27,770	24,809	89.3	7,440	17,369
ALASKA-----------	64	68	106.3	66	2
ARIZONA----------	36,313	40,035	110.2	10,349	29,686
ARKANSAS---------	7,542	8,976	119.0	5,060	3,916
CALIFORNIA-------	363,815	385,424	105.9	125,789	259,635
COLORADO---------	23,287	23,304	100.1	6,064	17,240
CONNECTICUT------	23,530	23,815	101.2	15,442	8,373
DELAWARE---------	3,436	4,146	120.7	2,612	1,534
FLORIDA----------	14,766	13,757	93.2	4,536	9,221
GEORGIA----------	34,804	32,726	94.0	11,034	21,692
HAWAII-----------	4,131	3,999	96.8	839	3,160
IDAHO------------	35,100	32,294	92.0	10,533	21,761
ILLINOIS---------	62,095	58,365	94.0	33,232	25,133
INDIANA----------	49,839	51,148	102.6	27,352	23,796
IOWA-------------	73,048	83,573	114.4	45,455	38,118
KANSAS-----------	44,412	49,424	111.3	27,645	21,779
KENTUCKY---------	27,967	25,962	92.8	11,106	14,856
LOUISIANA--------	32,707	27,788	85.0	10,506	17,282
MAINE------------	21,127	22,155	104.9	15,437	6,718
MARYLAND---------	51,057	48,947	95.9	26,613	22,334
MASSACHUSETTS----	19,313	19,403	100.5	12,951	6,452
MICHIGAN---------	95,060	95,920	100.9	45,650	50,270
MINNESOTA--------	159,660	172,100	107.8	101,489	70,611
MISSISSIPPI------	23,232	19,797	85.2	5,336	14,461
MISSOURI---------	42,339	48,404	114.3	23,777	24,627
MONTANA----------	5,230	5,491	105.0	2,256	3,235
NEBRASKA---------	25,765	28,868	112.0	13,311	15,557
NEVADA-----------	8,454	9,415	111.4	2,646	6,769
NEW HAMPSHIRE----	11,258	12,040	106.9	8,366	3,674
NEW JERSEY-------	15,960	16,735	104.9	11,039	5,696
NEW MEXICO-------	18,655	20,851	111.8	7,854	12,997
NEW YORK---------	198,322	204,920	103.3	140,093	64,827
NORTH CAROLINA---	62,559	59,786	95.6	26,431	33,355
NORTH DAKOTA-----	5,871	6,938	118.2	3,858	3,080
OHIO-------------	92,200	89,050	96.6	48,684	40,366
OKLAHOMA---------	25,971	26,570	102.3	10,391	16,179
OREGON-----------	34,580	37,166	107.5	15,062	22,104
PENNSYLVANIA-----	180,512	173,703	96.2	123,492	50,211
PUERTO RICO------	19,995	17,294	86.5	1,780	15,514
RHODE ISLAND-----	1,346	1,314	97.6	818	496
SOUTH CAROLINA---	30,380	27,576	90.8	10,393	17,183
SOUTH DAKOTA-----	10,928	12,819	117.3	6,691	6,128
TENNESSEE--------	45,402	41,943	92.4	15,826	26,117
TEXAS------------	46,118	44,064	95.5	16,931	27,133
UTAH ------------	31,924	31,978	100.2	10,723	21,255
VERMONT----------	45,761	45,708	99.9	30,712	14,996
VIRGINIA---------	79,019	76,666	97.0	42,718	33,948
WASHINGTON-------	72,775	72,260	99.3	27,229	45,031
WEST VIRGINIA----	12,903	12,572	97.4	7,526	5,046
WISCONSIN--------	219,818	235,813	107.3	130,249	105,564
WYOMING----------	3,044	3,027	99.4	904	2,123
UNITED STATES----	2,581,164	2,630,906	101.9	1,302,296	1,328,610

1/ LACTATION RECORD INPUT WAS FOR USDA-DHIA SIRE SUMMARY RUNS FOR SPRING 1977, FALL 1977, AND WINTER 1978 FOR CALENDAR YEAR 1977.

2/ PERCENTAGES VARY BY STATE AND MAY EXCEED 100 DEPENDING ON YEAR-TO-YEAR REPORTING AND PROCESSING PROCEDURES.

TABLE 4.--RELATIVE FREQUENCY OF ERRORS OR CONFLICTS IN OFFICIAL LACTATION RECORDS REPORTED TO USDA IN 1977

STATE	ZERO SIRES	OTHER IDENTIFICATION	INCORRECT DATES	MISCEL-LANEOUS	TOTAL FOR OTHER THAN ZERO SIRES	ALL ERRORS OR CONFLICTS
	NO.	NO.	NO.	NO.	NO.	NO.
ALABAMA-------------	16,865	294	283	4	581	17,446
ALASKA--------------	0	0	2	0	2	2
ARIZONA-------------	24,679	4,877	982	87	5,946	30,625
ARKANSAS------------	3,582	126	215	1	342	3,924
CALIFORNIA----------	224,593	29,375	6,207	1,026	36,608	261,201
COLORADO------------	9,927	7,076	717	178	7,971	17,898
CONNECTICUT---------	7,088	340	948	1	1,289	8,377
DELAWARE------------	1,329	136	73	4	213	1,542
FLORIDA-------------	8,044	1,154	335	34	1,523	9,567
GEORGIA-------------	20,290	480	960	8	1,448	21,738
HAWAII--------------	2,854	320	2	1	323	3,177
IDAHO---------------	19,185	2,287	650	54	2,991	22,176
ILLINOIS------------	19,939	4,348	2,259	92	6,699	26,638
INDIANA-------------	20,819	1,508	1,444	116	3,068	23,887
IOWA----------------	33,984	1,276	2,929	56	4,261	38,245
KANSAS--------------	19,501	799	1,582	25	2,406	21,907
KENTUCKY------------	13,714	647	497	10	1,154	14,868
LOUISIANA-----------	16,369	544	419	19	982	17,351
MAINE---------------	5,356	631	898	7	1,536	6,892
MARYLAND------------	6,885	6,643	9,453	168	16,264	23,149
MASSACHUSETTS-------	5,480	273	702	1	976	6,456
MICHIGAN------------	42,206	6,375	2,250	352	8,977	51,183
MINNESOTA-----------	64,106	3,286	3,245	8	6,539	70,645
MISSISSIPPI---------	13,423	380	696	6	1,082	14,505
MISSOURI------------	22,638	666	1,325	22	2,013	24,651
MONTANA-------------	896	2,615	130	10	2,755	3,651
NEBRASKA------------	14,614	269	727	4	1,000	15,614
NEVADA--------------	5,455	1,435	62	5	1,502	6,957
NEW HAMPSHIRE-------	3,002	234	445	0	679	3,681
NEW JERSEY----------	4,852	346	517	1	864	5,716
NEW MEXICO----------	9,297	3,383	428	69	3,880	13,177
NEW YORK------------	53,252	3,773	8,037	11	11,821	65,073
NORTH CAROLINA------	30,663	1,021	1,743	102	2,866	33,529
NORTH DAKOTA--------	2,690	76	314	2	392	3,082
OHIO----------------	31,354	7,281	3,045	118	10,444	41,798
OKLAHOMA------------	15,203	236	730	23	989	16,192
OREGON--------------	19,397	2,363	667	56	3,086	22,483
PENNSYLVANIA--------	36,595	8,235	6,501	100	14,836	51,431
PUERTO RICO---------	15,387	111	35	1	147	15,534
RHODE ISLAND--------	470	13	13	0	26	496
SOUTH CAROLINA------	15,803	1,147	572	19	1,738	17,541
SOUTH DAKOTA--------	5,580	211	340	5	556	6,136
TENNESSEE-----------	24,929	555	658	9	1,222	26,151
TEXAS---------------	25,011	1,522	828	61	2,411	27,422
UTAH ---------------	15,809	5,633	566	54	6,253	22,062
VERMONT-------------	12,531	1,053	1,445	6	2,504	15,035
VIRGINIA------------	30,708	1,165	2,123	62	3,350	34,058
WASHINGTON----------	41,490	2,633	1,123	123	3,879	45,369
WEST VIRGINIA-------	4,459	156	433	25	614	5,073
WISCONSIN-----------	89,703	9,187	7,098	3,596	19,881	109,584
WYOMING-------------	888	1,613	71	26	1,710	2,598
UNITED STATES-------	1,132,894	130,107	77,724	6,768	214,599	1,347,493

TABLE 5.--PERCENTAGES OF RELATIVE FREQUENCY OF ERRORS OR CONFLICTS IN OFFICIAL LACTATION RECORDS REPORTED TO USDA IN 1977

STATE	ZERO SIRES	OTHER IDENTIFICATION	INCORRECT DATES	MISCEL-LANEOUS	TOTAL FOR OTHER THAN ZERO SIRES	PERCENTAGE OF RECORDS RECEIVED
	PCT	PCT	PCT	PCT	PCT	
ALABAMA-------------	96.7	1.7	1.6	0.0	3.3	70.3
ALASKA--------------	0	0	100.0	0	100.0	2.9
ARIZONA-------------	80.6	15.9	3.2	.3	19.4	76.5
ARKANSAS------------	91.3	3.2	5.5	0	8.7	43.7
CALIFORNIA----------	86.0	11.2	2.4	.4	14.0	67.8
COLORADO------------	55.5	39.5	4.0	1.0	44.5	76.8
CONNECTICUT---------	84.6	4.1	11.3	0	15.4	35.2
DELAWARE------------	86.2	8.8	4.7	.3	13.8	37.2
FLORIDA-------------	84.1	12.1	3.5	.4	16.0	69.5
GEORGIA-------------	93.3	2.2	4.4	0	6.6	66.4
HAWAII--------------	89.8	10.1	.1	0	10.2	79.4
IDAHO---------------	86.5	10.3	2.9	.2	13.4	68.7
ILLINOIS------------	74.9	16.3	8.5	.3	25.1	45.6
INDIANA-------------	87.2	6.3	6.0	.5	12.8	46.7
IOWA----------------	88.9	3.3	7.7	.1	11.1	45.8
KANSAS--------------	89.0	3.6	7.2	.1	10.9	44.3
KENTUCKY------------	92.2	4.4	3.3	.1	7.8	57.3
LOUISIANA-----------	94.3	3.1	2.4	.1	5.6	62.4
MAINE---------------	77.7	9.2	13.0	.1	22.3	31.1
MARYLAND------------	29.7	28.7	40.8	.7	70.2	47.3
MASSACHUSETTS-------	84.9	4.2	10.9	0	15.1	33.3
MICHIGAN------------	82.5	12.5	4.4	.7	17.6	53.4
MINNESOTA-----------	90.7	4.7	4.6	0	9.3	41.0
MISSISSIPPI---------	92.5	2.6	4.8	0	7.4	73.3
MISSOURI------------	91.8	2.7	5.4	.1	8.2	50.9
MONTANA-------------	24.5	71.6	3.6	.3	75.5	66.5
NEBRASKA------------	93.6	1.7	4.7	0	6.4	54.1
NEVADA--------------	78.4	20.6	.9	.1	21.6	73.9
NEW HAMPSHIRE-------	81.6	6.4	12.1	0	18.5	30.6
NEW JERSEY----------	84.9	6.1	9.0	0	15.1	34.2
NEW MEXICO----------	70.6	25.7	3.2	.5	29.4	29.4
NEW YORK------------	81.8	5.8	12.4	0	18.2	31.8
NORTH CAROLINA------	91.5	3.0	5.2	.3	8.5	56.1
NORTH DAKOTA--------	87.3	2.5	10.2	.1	12.8	44.4
OHIO----------------	75.0	17.4	7.3	.3	25.0	46.9
OKLAHOMA------------	93.9	1.5	4.5	.1	6.1	60.9
OREGON--------------	86.3	10.5	3.0	.2	13.7	60.5
PENNSYLVANIA--------	71.2	16.0	12.6	.2	28.8	29.6
PUERTO RICO---------	99.1	.7	.2	0	.9	89.8
RHODE ISLAND--------	94.8	2.6	2.6	0	5.2	37.7
SOUTH CAROLINA------	90.1	6.5	3.3	.1	9.9	63.6
SOUTH DAKOTA--------	90.9	3.4	5.5	.1	.9	47.8
TENNESSEE-----------	95.3	2.1	2.5	0	4.6	62.3
TEXAS---------------	91.2	5.6	3.0	.2	8.8	62.2
UTAH ---------------	71.7	25.5	2.6	.2	28.3	69.0
VERMONT-------------	83.3	7.0	9.6	0	16.6	32.9
VIRGINIA------------	90.2	3.4	6.2	.2	9.8	44.4
WASHINGTON----------	91.5	5.8	2.5	.3	8.6	62.8
WEST VIRGINIA-------	87.9	3.1	8.5	.5	12.1	40.4
WISCONSIN-----------	81.9	8.4	6.5	3.3	18.2	46.5
WYOMING-------------	34.2	62.1	2.7	1.0	85.8	65.8
UNITED STATES--------	83.0	9.6	5.7	1.6	17.0	52.4

TABLE 6.--SIRE IDENTIFICATION IN OFFICIAL LACTATION RECORDS FOR 1977, BY STATE

STATE	NON-ZERO SIRE NUMBERS	PERCENTAGE OF ALL RECORDS RECEIVED	ZERO SIRE NUMBERS			PERCENTAGE OF ALL RECORDS RECEIVED
			GRADE	REGISTERED	TOTAL	
	NO.		NO.	NO.	NO.	
ALABAMA	7,944	32.0	16,859	6	16,865	68.0
ALASKA	68	100.0	0	0	0	0
ARIZONA	15,356	38.4	24,518	161	24,679	61.6
ARKANSAS	5,394	60.1	3,582	0	3,582	39.9
CALIFORNIA	160,831	41.7	224,244	349	224,593	58.3
COLORADO	13,377	57.4	9,832	95	9,927	42.6
CONNECTICUT	16,727	70.2	7,087	1	7,088	29.8
DELAWARE	2,817	67.9	1,329	0	1,329	32.1
FLORIDA	5,713	41.5	8,003	41	8,044	58.5
GEORGIA	12,436	38.0	20,290	0	20,290	62.0
HAWAII	1,145	28.6	2,845	9	2,854	71.4
IDAHO	13,109	40.6	19,162	23	19,185	59.4
ILLINOIS	38,426	65.8	19,722	217	19,939	34.2
INDIANA	30,329	59.3	20,816	3	20,819	40.7
IOWA	49,589	59.3	33,979	5	33,984	40.7
KANSAS	29,923	60.5	19,498	3	19,501	39.5
KENTUCKY	12,248	47.2	13,714	0	13,714	52.8
LOUISIANA	11,419	41.1	16,369	0	16,369	58.9
MAINE	16,799	75.8	5,355	1	5,356	24.2
MARYLAND	42,062	85.9	6,743	142	6,885	14.1
MASSACHUSETTS	13,923	71.8	5,480	0	5,480	28.2
MICHIGAN	53,714	56.0	42,131	75	42,206	44.0
MINNESOTA	107,994	62.8	64,103	3	64,106	37.2
MISSISSIPPI	6,374	32.2	13,423	0	13,423	67.8
MISSOURI	25,766	53.2	22,632	6	22,638	46.8
MONTANA	4,595	83.7	840	56	896	16.3
NEBRASKA	14,254	49.4	14,589	25	14,614	50.6
NEVADA	3,960	42.1	5,445	10	5,455	57.9
NEW HAMPSHIRE	9,038	75.1	3,002	0	3,002	24.9
NEW JERSEY	11,883	71.0	4,852	0	4,852	29.0
NEW MEXICO	11,554	55.4	9,276	21	9,297	44.6
NEW YORK	151,668	74.0	53,229	23	53,252	26.0
NORTH CAROLINA	29,123	48.7	30,656	7	30,663	51.3
NORTH DAKOTA	4,248	61.2	2,690	0	2,690	38.8
OHIO	57,696	64.8	31,085	269	31,354	35.2
OKLAHOMA	11,367	42.8	15,203	0	15,203	57.2
OREGON	17,769	47.8	19,356	41	19,397	52.2
PENNSYLVANIA	137,108	78.9	36,304	291	36,595	21.1
PUERTO RICO	1,907	11.0	15,385	2	15,387	89.0
RHODE ISLAND	844	64.2	470	0	470	35.8
SOUTH CAROLINA	11,773	42.7	15,766	37	15,803	57.3
SOUTH DAKOTA	7,239	56.5	5,580	0	5,580	43.5
TENNESSEE	17,014	40.6	24,929	0	24,929	59.4
TEXAS	19,053	43.2	24,980	31	25,011	56.8
UTAH	16,169	50.6	15,769	40	15,809	49.4
VERMONT	33,177	72.6	12,531	0	12,531	27.4
VIRGINIA	45,958	59.9	30,705	3	30,708	40.1
WASHINGTON	30,770	42.6	41,477	13	41,490	57.4
WEST VIRGINIA	8,113	64.5	4,459	0	4,459	35.5
WISCONSIN	146,110	62.0	87,023	2,680	89,703	38.0
WYOMING	2,139	70.7	743	145	888	29.3
UNITED STATES	1,498,012	56.9	1,128,060	4,834	1,132,894	43.1

TABLE 7.--SUMMARY OF OFFICIAL LACTATION RECORDS RECEIVED BY USDA SINCE 1957 1/

YEAR	OFFICIAL DHI AND DHIR COWS ENROLLED ON JAN. 1 EACH YEAR	LACTATION RECORDS RECEIVED BY USDA	OFFICIAL DHI AND DHIR COWS REPRESENTED BY RECORDS REPORTED	LACTATIONS REPORTED WITH ZERO SIRE NUMBER 2/		LACTATIONS REJECTED BY OTHER ERRORS OR CONFLICTS 2/,3/		LACTATION RECORDS USED 2/,3/	
	NO.	NO.	PCT	NO.	PCT	NO.	PCT	NO.	PCT
1957--	1,479,799	565,360	38.2						
1958--	1,548,884	786,496	50.8						
1959--	1,607,538	927,998	57.7						
1960--	1,746,752	886,495	50.8						
1961--	1,867,469	1,084,799	58.1						
1962--	1,958,355	1,211,407	61.9						
1963--	2,006,534	1,320,423	65.8						
1964--	2,010,144	1,437,959	71.5						
1965--	2,087,581	1,749,752	83.8						
1966--	2,058,592	1,788,974	86.9						
1967--	2,098,919	1,851,274	88.2						
1968--	2,131,929	1,916,831	89.9						
1969--	2,138,953	1,870,276	87.4	803,926	43.0	65,978	3.5	1,000,372	53.5
1970--	2,122,011	1,907,042	89.9	782,474	41.0	67,032	3.5	1,057,536	55.5
1971--	2,211,366	2,066,743	93.2	852,605	41.3	79,203	3.8	1,134,935	54.9
1972--	2,237,649	2,143,259	95.8	899,087	42.0	76,571	3.6	1,167,601	54.5
1973--	2,349,211	2,417,721	102.9	1,044,785	43.2	94,848	3.9	1,278,088	52.9
1974--	2,404,158	2,498,687	103.9	1,099,748	44.0	101,342	4.1	1,297,597	51.9
1975--	2,417,008	2,444,865	101.2	1,058,224	43.3	192,986	7.9	1,193,655	48.8
1976--	2,438,365	2,515,217	103.2	1,061,826	42.2	193,356	7.7	1,260,035	50.1
1977--	2,581,164	2,630,906	101.9	1,132,894	43.1	195,716	7.4	1,302,296	49.5

1/ RECORDS FROM PUERTO RICO NOT INCLUDED BEFORE 1976.

2/ MAIN EDIT NOT RUN IN JANUARY 1975, AND THE ERRORS WERE INCLUDED IN THE MAY 1975 RUN SO FIGURES FOR 1974 AND 1975 ARE NOT COMPLETELY COMPARABLE WITH OTHER YEARS.

3/ SEE TEXT FOR REASONS FOR DIFFERENCE IN REPORTING FOR 1975-1976.

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